ATTACHMENT – A

EMISSIONS INVENTORIES

On December 14, 2012, USEPA issued a final rule revising the $PM_{2.5}$ NAAQS by lowering the primary annual $PM_{2.5}$ standard from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ to provide increased protection against health effects associated with long- and short-term fine particle exposures. The USEPA retained the primary 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$ and the existing secondary (welfare-based) annual PM2.5 standard of 15 $\mu g/m^3$. In April 2015, Imperial County was classified as a Moderate $PM_{2.5}$ nonattainment area for the annual $PM_{2.5}$ primary standard of 12 $\mu g/m^3$. The $PM_{2.5}$ nonattainment area for the 2012 Annual $PM_{2.5}$ NAAQS includes the same area covered under the 2006 24-hour $PM_{2.5}$ Moderate nonattainment area.

The non-attainment area contains a handful of emissions source categories that significantly contribute to the $PM_{2.5}$ nonattainment status, such as vehicular traffic, unpaved road dust, fugitive windblown dust, farming operations, managed burning and disposal, and aircraft. Based on the emissions inventory data included in the 2018 Annual $PM_{2.5}$ SIP, unpaved road dust emissions, classified as an area wide emissions source, account for 36% of the $PM_{2.5}$ emissions in Imperial County. For fugitive windblown dust, which is also an area wide emissions source, these emissions based on the 2018 Annual $PM_{2.5}$ SIP account for 32% of the $PM_{2.5}$ emissions in the County. Given these figures, it is apparent that unpaved road and fugitive dust emissions are both major contributors to the nonattainment status of Imperial County; however, mitigation of these emissions can be achieved via the implementation of the Paving Project at the alleyways in the City of El Centro. The City of El Centro Alleyway paving project will have a direct PM_{10} and $PM_{2.5}$ emissions reduction on the Imperial County Unpaved Road Travel Dust – City and County Roads Category (EIC: 645-638-5400-0000) and Windblown Dust – Unpaved Roads Category (EIC: 650-652-5400-0000). The projects will have a slight increase in the Paved Entrained Road Travel Dust – Local Streets Category (EIC: 640-641-5400-0000).

Table 1, below indicates the estimated emissions reduction from the paving of the alleyways in the City of El Centro. Table 1, is a summary of all expected emissions reductions from the Paving Project. The Paving project consists of paving alleyways in the City of El Centro. Refer to Attachment B, *Emissions Reduction Calculations* for a complete description of the emissions calculations.

Table 1: Paving Project $PM_{2.5}$ and PM_{10} Emissions Reductions

Category	**PM2.5 (tons/yr)**	**PM10 (tons/yr)**
Unpaved Road Travel Dust – City and County Roads (EIC: 645-638-5400-0000)	5.11	50.01
Windblown Dust – Unpaved Roads (EIC: 650-652-5400-0000)	0.53	4.04
Total Unpaved Road Emissions	**5.64**	**54.05**
Paved Entrained Road Travel Dust – Local Streets (EIC: 640-641-5400-0000)	0.007	0.048
Total Project/Inventory Emission Reductions (tons/year) (Unpaved Road Emissions minus Paved Road Emissions)	**5.63**	**54.01**
Total Project/Inventory Emission Reductions (tons/day)	**0.02**	**0.15**

Note: Refer to Attachment B (Emissions Reduction Calculations) for Emission Calculations

Chapter 6, of the Imperial County 2018 Annual $PM_{2.5}$ SIP demonstrates that Imperial County will satisfy Reasonable Further Progress (RFP) by reducing $PM_{2.5}$ emissions. Table 2 below was produced using the

California Emissions Projection Analysis Model (CEPAM) version 1.05, which was used for the Imperial County 2018 Annual $PM_{2.5}$ SIP. Table 2 below was included in this document to show the 2012, 2019 and 2022 $PM_{2.5}$ Emission Inventory Trend for the Unpaved Road Travel Dust – City and County Roads Category (EIC: 645-638-5400-0000), Windblown Dust – Unpaved Roads Category (EIC: 650-652-5400-0000) and the Paved Entrained Road Travel Dust – Local Streets Category (EIC: 640-641-5400-0000). The paving of the alleyways in the City of El Centro will reduce direct $PM_{2.5}$ in these Categories and allow Imperial County to get closer to meeting its RFP obligation.

Table 2: 2012, 2019, and 2022 $PM_{2.5}$ CEPAM V 1.05 Emissions Inventory Trend

Category	2012	2019	2022
Unpaved Road Travel Dust – City and County Roads (EIC: 645-638-5400-0000)	2.089	1.481	1.352
Windblown Dust – Unpaved Roads & Associated Areas (EIC: 650-652-5400-0000)	2.618	2.618	2.618
Paved Entrained Road Travel Dust – Local Streets (EIC: 640-641-5400-0000)	0.064	0.078	0.087

Methodology

The methodologies used to calculate emissions reductions from the paving of the alleyways in the City of El Centro are the methodologies that were used in the Imperial County 2018 Annual Particulate Matter Less Than 2.5 Microns In Diameter State Implementation Plan. These methodologies were used in order to have a direct correlation from the calculated emission reductions and the Imperial County Emissions Inventory.

The proposed project proposes to pave alleyways in the City of El Centro. The emission reductions were calculated in Attachment B. In order to calculate emissions reduction (3) Methodologies were used and each is described below.

California Air Resources Board (CARB), Miscellaneous Process Methodology 7.10, *Unpaved Road Dust, Non-Farm Roads* was used to calculate unpaved fugitive PM_{10} and $PM_{2.5}$ emissions from the travel on the unpaved alleyways, which are accounted in the Imperial County Unpaved Road Travel Dust – City and County Roads under Emissions Inventory Category (EIC: 645-638-5400-0000). Additional information on this methodology is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-10_2012.pdf.

Unpaved Alleyway Sample

An Emission Factor (EF) of 2 lbs PM_{10} and 0.2 lbs $PM_{2.5}$ (10% of PM_{10}) per vehicle miles travelled (VMT) are used, based on Change of Methodology section found on page 6 of the methodology 7.10. There are 30 unpaved alleyways , which sum up to 13,098 feet (approx. 2.5 miles). Each alleyway was given a Vehicle miles travel per day (VMT/day) calculated by multiplying the length of the alleyway by the Average Daily Traffic (ADT) value. Each alleyway was given an estimated Average Daily Traffic (ADT) value, depending on the factors below

Estimated ADT Factors

- Single Home ADT = 2 ADT/Affected Parcel
- Apartments ADT = 8 ADT/Affected Parcel

• Mixed ADT = 75% Affected Parcel Single Family ADT +
25% Affected Parcel Apartment ADT

The summation of each VMT/day for all the alleyways was 137 VMT/Day. Refer to Attachment C.3, *VMT & ADT CALCULATIONS* for a complete description of the VMT calculations.

Vehicle Miles Travelled = 137 VMT/day

Unpaved PM_{10} Emissions = 2 lbs PM_{10}/VMT × 137 VMT/day
= 274 lbs PM_{10}/day; 0.137 tons PM_{10}/day
= 0.137 tons PM_{10}/day × 365 days/yr
= 50.01 tons PM_{10}/yr

Unpaved $PM_{2.5}$ Emissions = 0.2 lbs $PM_{2.5}$/VMT × 137 VMT/day
= 27.4 lbs $PM_{2.5}$/day; 0.014 tons $PM_{2.5}$/day
= 0.014 tons $PM_{2.5}$/day × 365 days/yr
= 5.11 tons $PM_{2.5}$/yr

California Air Resources Board (CARB), Windblown Dust – Unpaved Roads Section 7.13 Methodology was used to calculate Windblown fugitive PM_{10} and $PM_{2.5}$ emissions from the unpaved alleyways, which are accounted in the Imperial County Windblown Dust – Unpaved Roads under Emissions Inventory Category (EIC: 650-652-5400-0000). Additional information on this methodology is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-13.pdf.

Windblown Alleyway Sample

Existing Windblown PM_{10} and $PM_{2.5}$ emissions from unpaved alleyways in the City of El Centro are calculated using the CARB Windblown Dust – Unpaved Roads Section 7.13 Methodology. Additional information on this methodology is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-13.pdf. An Emission Factor (EF) of 3,230 lbs PM_{10}/mile is used based on the methodology mentioned above. 2.5 miles was used as described above in the unpaved parking lot sample. $PM_{2.5}$ is calculated as 13.2 percent of PM_{10}, which is the ARB particle size profile used in the Updating Imperial County $PM_{2.5}$ NAA Windblown Dust Emissions document (https://ww3.arb.ca.gov/ei/areasrc/districtmeth/imperial/2014_impwbd.pdf).

Windblown PM_{10} Emissions = 3,230 lbs PM_{10}/mile × 2.5 miles
= 8,075 lbs PM_{10}/yr; **4.04 tons PM_{10}/yr**

Windblown $PM_{2.5}$ Emissions = 4.04 tons PM_{10}/yr × 0.132 $PM_{2.5}$/PM_{10}
= 0.53 tons $PM_{2.5}$/yr

California Air Resources Board (CARB), Miscellaneous Process Methodology 7.9, *Entrained Road Travel, Paved Road Dust* was used to calculate Paved Entrained Road PM_{10} and $PM_{2.5}$ emissions from the unpaved alleyways, which are accounted in the Imperial County Paved Entrained Road Travel Dust – Local Streets

under Emissions Inventory Category (EIC: 640-641-5400-0000). Additional information on this methodology is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf.

Paved Alleyway Sample

El Centro Alleyways sample. There are 30 unpaved alleyways , which sum up to 13,098 feet (approx. 2.5 miles). Each alleyway was given a Vehicle miles travel per day (VMT/day) calculated by multiplying the length of the alleyway by the Average Daily Traffic (ADT) value.

The summation of each VMT/day for all the alleyways was 137 VMT/Day.

Emissions calculations are calculate below by following the sample calculation on page 11 of Miscellaneous Process Methodology 7.9.

PM_{10} E.F. = [k $(sL)^{0.91}$ × $(W)^{1.02}$] × (1-P/4N)

Where;

factor	PM 10	
k =	0.0022	EPA AP-42 Table 13.2.1-1
sL =	0.32 (g/m^2)	Table 7, ARB – Misc. Process Methodology 7.9
W =	2.4 tons	California statewide default
P =	11	Table 7, ARB – Misc. Process Methodology 7.9
N =	365	No. of days in averaging period

PM10 E.F. = [0.0022 (0.32)0.91 × (2.4)1.02] × (1-11/4(365))
= (0.0022 × 0.355 × 2.44) × (1 – 11/1460)
= (0.0019) × (0.992)
PM10 E.F. = 0.00189 lbs PM10/VMT

Paved Road PM_{10} Emissions = 0.00189 lbs PM_{10}/VMT × 137 VMT/day
= 0.259 lbs PM_{10}/Day
= 0.259 lbs PM_{10}/Day × 365 days/yr
= 94.54 lbs PM_{10}/yr; **0.048 tons PM_{10}/yr**

Paved Road $PM_{2.5}$ Emissions = tons/yr PM_{10} × Fraction ($PM_{2.5}$/PM_{10})
= 0.048 tons PM_{10}/yr × (0.0686/0.4572)
= 0.007 tons $PM_{2.5}$/yr

ATTACHMENT – B

EMISSIONS REDUCTIONS CALCULATIONS

Paving Project – Reducing Dust Emissions form Unpaved Alleyways (El Centro, CA)

The Paving Project will reduce directly emitted PM10 and PM2.5 emissions from dust generated due to disturbances of the surface of various unpaved alleyways located adjacent to residences within El Centro, CA. The analysis below shows the emissions reduction calculations for paving this network of native soil alleyways, which total approximately 2.5 miles (13,098 linear feet), with asphaltic concrete (AC) roadway surfacing. The stated methodology for these calculations is the same one used in the Imperial County 2018 Annual PM2.5 SIP:

Existing Project Emissions

Existing unpaved fugitive PM_{10} and $PM_{2.5}$ emissions from alleyways in the City of El Centro are calculated using the CARB Miscellaneous Process Methodology 7.10, *Unpaved Road Dust, Non-Farm Roads*. Additional information on this methodology is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-10_2012.pdf. An Emission Factor (EF) of 2 lbs PM_{10} and 0.2 lbs $PM_{2.5}$ per vehicle miles travelled (VMT) are used, based on the methodology 7.10.

There are 30 unpaved alleyways , which sum up to 13,098 feet (approx. 2.5 miles). Each alleyway was given a Vehicle miles travel per day (VMT/day) calculated by multiplying the length of the alleyway by the Average Daily Traffic (ADT) value. Each alleyway was given an estimated Average Daily Traffic (ADT) value, depending on the factors below

Estimated ADT Factors

- Single Home ADT = 2 ADT/Affected Parcel
- Apartments ADT = 8 ADT/Affected Parcel
- Mixed ADT = 75% Affected Parcel Single Family ADT + 25% Affected Parcel Apartment ADT

The summation of each VMT/day for all the alleyways was 137 VMT/Day. Refer to Attachment C.3, *VMT & ADT CALCULATIONS* for a complete description of the VMT calculations.

Vehicle Miles Travelled = 137 VMT/day

Unpaved PM_{10} Emissions = 2 lbs PM_{10}/VMT × 137 VMT/day
= 274 lbs PM_{10}/day; 0.137 tons PM_{10}/day
= 0.137 tons PM_{10}/day × 365 days/yr
= 50.01 tons PM_{10}/yr

Unpaved $PM_{2.5}$ Emissions = 0.2 lbs $PM_{2.5}$/VMT × 137 VMT/day
= 27.4 lbs $PM_{2.5}$/day; 0.014 tons $PM_{2.5}$/day
= 0.014 tons $PM_{2.5}$/day × 365 days/yr
= 5.11 tons $PM_{2.5}$/yr

Existing Windblown PM_{10} and $PM_{2.5}$ emissions from unpaved alleyways in the City of El Centro are calculated using the CARB Windblown Dust – Unpaved Roads Section 7.13 Methodology. Additional information on this methodology is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-13.pdf. An Emission Factor (EF) of 3,230 lbs PM_{10}/mile is used based on the methodology mentioned above. $PM_{2.5}$ is calculated as 13.2 percent of PM_{10}, which is the ARB particle size profile used in the Updating Imperial County $PM_{2.5}$ NAA Windblown Dust Emissions document (https://ww3.arb.ca.gov/ei/areasrc/districtmeth/imperial/2014_impwbd.pdf).

Windblown PM_{10} Emissions = 3,230 lbs PM_{10}/mile × 2.5 miles
= 8,075 lbs PM_{10}/yr; **4.04 tons PM_{10}/yr**

Windblown $PM_{2.5}$ Emissions = 4.04 tons PM_{10}/yr × 0.132 $PM_{2.5}/PM_{10}$
= 0.53 tons $PM_{2.5}$/yr

Post-Construction/Paved Emissions

Post-construction (paved) PM_{10} and $PM_{2.5}$ emissions are calculated using the CARB Miscellaneous Process Methodology 7.9, *Entrained Road Travel, Paved Road Dust*. Additional information on this methodology is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf.

Vehicle Miles Travelled = 137 VMT/day

Emissions calculations are calculate below by following the sample calculation on page 11 of Miscellaneous Process Methodology 7.9.

PM_{10} E.F. = [k $(sL)^{0.91}$ × $(W)^{1.02}$] × (1-P/4N)

Where;

factor	PM 10	
k =	0.0022	EPA AP-42 Table 13.2.1-1
sL =	0.32 (g/m^2)	Table 7, ARB – Misc. Process Methodology 7.9
W =	2.4 tons	California statewide default
P =	11	Table 7, ARB – Misc. Process Methodology 7.9
N =	365	No. of days in averaging period

PM10 E.F. = [0.0022 (0.32)0.91 × (2.4)1.02] × (1-11/4(365))
= (0.0022 × 0.355 × 2.44) × (1 – 11/1460)
= (0.0019) × (0.992)
PM10 E.F. = 0.00189 lbs PM10/VMT

Paved Road PM_{10} Emissions = 0.00189 lbs PM_{10}/VMT × 137 VMT/day
= 0.259 lbs PM_{10}/Day
= 0.259 lbs PM_{10}/Day × 365 days/yr
= 94.54 lbs PM_{10}/yr; **0.048 tons PM_{10}/yr**

Paved Road $PM_{2.5}$ Emissions = tons/yr PM_{10} × Fraction ($PM_{2.5}/PM_{10}$)
= 0.048 tons PM_{10}/yr × (0.0686/0.4572)
= 0.007 tons $PM_{2.5}$/yr

Paving Project Total Emissions Reductions (El Centro Alleyways)

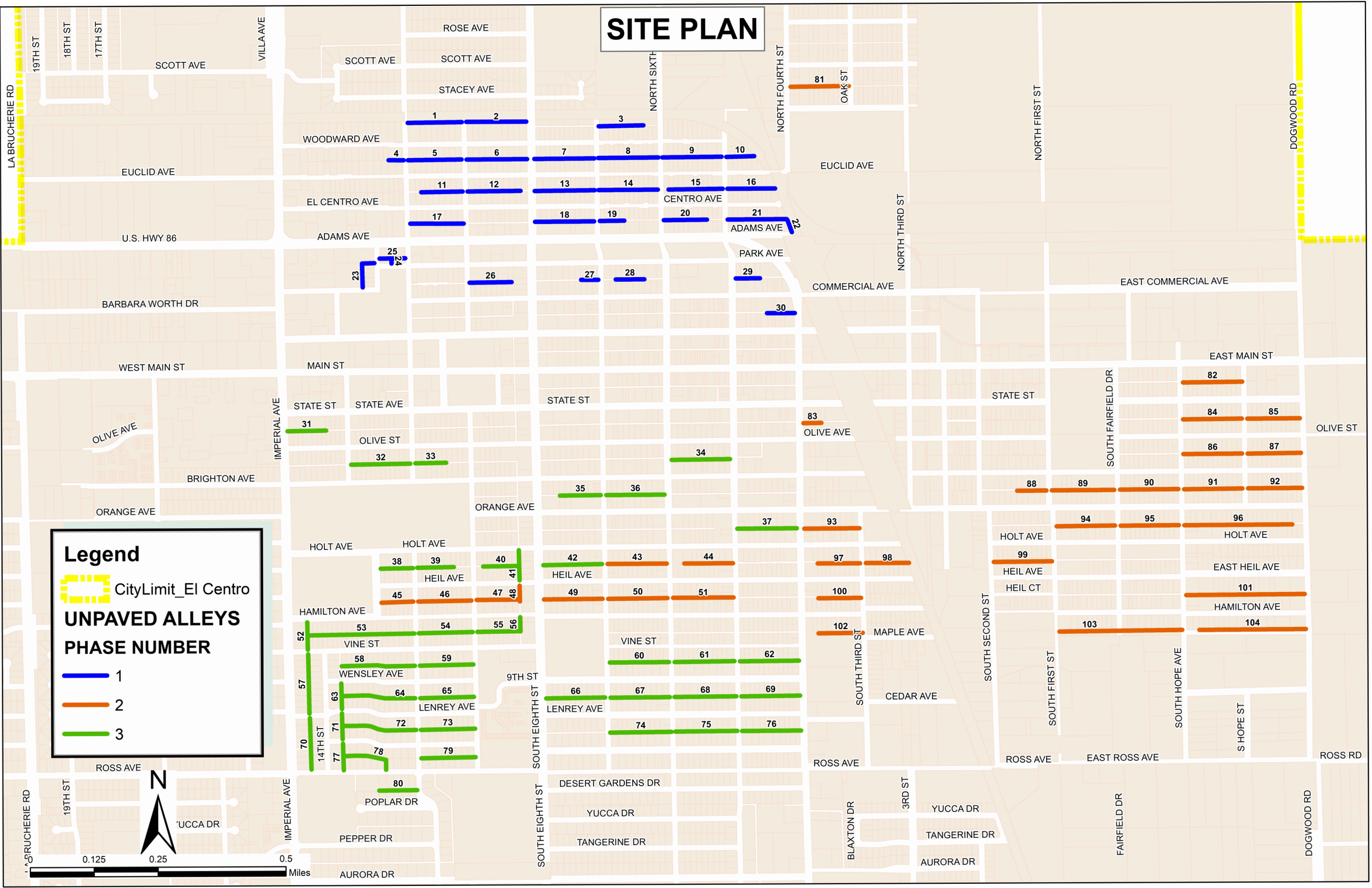
Unpaved Alleyway Emissions	**PM 10 (tons/yr)**	**PM2.5 (tons/yr)**
Unpaved Alley Emissions	50.01	5.11

Unpaved Windblown Emissions	4.04	0.53
Total Unpaved Emissions	54.05	5.64
Paved Road Emissions	0.048	0.007
Total Emissions Reductions	**54.01**	**5.63**

ATTACHMENT – C.1

SITE PLAN

SITE PLAN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SCOTT AVE
SCOTT AVE
SCOTT AVE
STACEY AVE
WOODWARD AVE
EUCLID AVE
EL CENTRO AVE
ADAMS AVE
U.S. HWY 86
BARBARA WORTH DR
WEST MAIN ST
MAIN ST
STATE ST
STATE AVE
STATE ST
STATE ST
OLIVE AVE
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BRIGHTON AVE
ORANGE AVE
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HOLT AVE
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HEIL AVE
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HEIL CT
HAMILTON AVE
HAMILTON AVE
VINE ST
VINE ST
WENSLEY AVE
LENREY AVE
LENREY AVE
ROSS AVE
ROSS AVE
EAST ROSS AVE
ROSS RD
DESERT GARDENS DR
YUCCA DR
YUCCA DR
TANGERINE DR
TANGERINE DR
AURORA DR
AURORA DR
PEPPER DR
POPLAR DR
9TH ST
PARK AVE
COMMERCIAL AVE
EAST COMMERCIAL AVE
EAST MAIN ST
EUCLID AVE
CENTRO AVE
ADAMS AVE
MAPLE AVE
CEDAR AVE
LA BRUCHERIE RD
19TH ST
18TH ST
17TH ST
VILLA AVE
NORTH SIXTH
NORTH FOURTH ST
OAK ST
NORTH THIRD ST
NORTH FIRST ST
DOGWOOD RD
IMPERIAL AVE
SOUTH EIGHTH ST
SOUTH THIRD ST
SOUTH SECOND ST
SOUTH FIRST ST
SOUTH HOPE AVE
S HOPE ST
SOUTH FAIRFIELD DR
BLAXTON DR
3RD ST
FAIRFIELD DR
14TH ST
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37
38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104
Legend
CityLimit_El Centro
UNPAVED ALLEYS
PHASE NUMBER
1
2
3
N
0 0.125 0.25 0.5
Miles

ATTACHMENT – C.2

FIELD DATA

Field Data

No.	Alley location	Segment	Length (ft)	Affected parcels	Housing
1	North of Woodward Ave	12th to 10th	557	9	Apartments
2	North of Woodward Ave	10th to 8th	618	9	Apartments
3	North of Woodward Ave	7th to 6th	462	12	Mixed
4	North of Euclid Ave	12th to west	156	3	Mixed
5	North of Euclid Ave	12th to 10th	554	22	Single Homes
6	North of Euclid Ave	10th to 8th	625	20	Single Homes
7	North of Euclid Ave	8th to 7th	620	24	Single Homes
8	North of Euclid Ave	7th to 6th	622	24	Single Homes
9	North of Euclid Ave	6th to 5th	611	24	Single Homes
10	North of Euclid Ave	5th to RR	288	12	Single Homes
11	North of El Centro Ave	12th to 10th	428	16	Mixed
12	North of El Centro Ave	10th to 8th	546	18	Mixed
13	North of El Centro Ave	8th to 7th	620	23	Single Homes
14	North of El Centro Ave	7th to 6th	612	24	Mixed
15	North of El Centro Ave	6th to 5th	560	22	Mixed
16	North of El Centro Ave	5th to RR	490	19	Single Homes
17	North of Adams Ave	12th to 10th	550	14	Mixed
18	North of Adams Ave	8th to 7th	609	16	Mixed
19	North of Adams Ave	7th to 6th	252	7	Mixed
20	North of Adams Ave	6th to 5th	446	16	Mixed
21	North of Adams Ave	5th to RR	610	19	Mixed
22	North of Adams Ave	Adams and El Centro	132	1	Single Home
23	North of Commercial Ave	Commercial to Park	375	5	Single Homes
24	North of Park Ave	Park to Adams	46	2	Mixed
25	North of Park Ave	Wilson to 12th	266	3	Mixed
26	North of Commercial Ave	10th to 8th	434	12	Mixed
27	North of Commercial Ave	8th to 7th	177	6	Apartments
28	North of Commercial Ave	7th to 6th	295	10	Apartments
29	North of Commercial Ave	5th to 4th	250	7	Apartments
30	North of Broadway Ave	5th to 4th	287	9	Mixed
31	North of Olive Ave	Imperial to 14th	400	10	MIxed
32	North of Brighton	14th to 12th	610	23	Single Homes
33	North of Brighton	12th to 10th	318	12	Single Homes
34	North of Brighton	6th to 5th	602	21	MIxed
35	North of Orange	8th to 7th	420	10	Mixed
36	North of Orange	7th to 6th	600	19	Mixed
37	North of Holt	5th to 4th	615	18	Mixed
38	North of Heil	Wilson to 12th	332	9	MIxed
39	North of Heil	12th to 10th	376	14	Single Homes
40	North of Heil	10th to 8th	361	15	Single Homes
41	North of Heil	Heil to Holt	310	5	Single Homes
42	North of Heil	8th to 7th	604	22	MIxed
43	North of Heil	7th to 6th	610	21	Single Homes
44	North of Heil	6th to 5th	502	16	Mixed
45	North of Hamilton	Wilson to 12th	326	13	Single Homes

46	North of Hamilton	12th to 10th	548	20	Single Homes
47	North of Hamilton	10th to 8th	435	15	Single Homes
48	North of Hamilton	Hamilton to Heil	162	3	Mixed
49	North of Hamilton	8th to 7th	605	19	Single Homes
50	North of Hamilton	7th to 6th	612	22	Single Homes
51	North of Hamilton	6th to 5th	623	22	Single Homes
52	North of Vine	Vine to Hamilton	282	5	Mixed
53	North of Vine	Imperial to 12th	1090	42	Single Homes
54	North of Vine	12th to 10th	556	21	Single Homes
55	North of Vine	10th to 8th	435	16	Single Homes
56	North of Vine (W of 8th)	Vine to Hamilton	147	2	Single Homes
57	North of Lenrey	Lenrey to Vine	612	20	Single Homes
58	North of Wensley	14th to 12th	756	26	Single Homes
59	North of Wensley	12th to 10th	550	16	Single Homes
60	North of Wensley	7th to 6th	610	22	Single Homes
61	North of Wensley	6th to 5th	615	20	Single Homes
62	North of Wensley	5th to 4th	608	22	Single Homes
63	North of Lenrey	Lenrey to Wensley	263	6	Single Homes
64	North of Lenrey	14th to 12th	751	26	Single Homes
65	North of Lenrey	12th to 10th	553	16	Single Homes
66	North of Lenrey	8th to 7th	607	20	Single Homes
67	North of Lenrey	7th to 6th	611	19	Single Homes
68	North of Lenrey	6th to 5th	638	19	Single Homes
69	North of Lenrey	5th to 4th	606	23	Single Homes
70	North of Ross	Ross to Lenrey	532	16	Single Homes
71	North of Sandalwood	Sandalwood to Lenrey	266	6	Single Homes
72	North of Sandalwood	14th to 12th	760	22	Single Homes
73	North of Sandalwood	12th to 10th	560	18	Single Homes
74	North of Sandalwood	7th to 6th	632	18	Single Homes
75	North of Sandalwood	6th to 5th	640	20	Single Homes
76	North of Sandalwood	5th to 4th	609	20	Single Homes
77	North of Ross	Ross to Sandalwood	274	5	Single Homes
78	North of Ross (L shape)	14th to 12th	540	12	Single Homes
79	North of Ross	12th to 10th	558	16	Single Homes
80	North of Poplar	12th to west end	392	6	Single Homes
81	North of San Diego Ave	4th to Oak St	600	20	Single Homes
82	North of State St	Hope to McCullom	610	21	Mixed
83	North of Olive Ave	4th to east end	185	4	Commercial
84	North of Olive Ave	Hope to McCullom	606	24	Single Homes
85	North of Olive Ave	McCullom to Dogwood	543	21	Single Homes
86	North of Brighton	Hope to McCullom	604	20	Single Homes
87	North of Brighton	McCullom to Dogwood	549	20	Single Homes
88	North of Orange Ave	1st St to west end	300	10	Mixed
89	North of Orange Ave	1st St to Fairfield	642	16	Mixed
90	North of Orange Ave	Fairfield to Hope	602	24	Single Homes
91	North of Orange Ave	Hope to McCullom	602	22	Mixed
92	North of Orange Ave	McCullom to Dogwood	556	22	Single Homes

93	North of Holt	4th to 3rd	570	16	Mixed
94	North of Holt	1st St to Fairfield	602	25	Mixed
95	North of Holt	Fairfield to Hope	602	24	Single Homes
96	North of Holt	Hope to Dogwood	1114	40	Single Homes
97	North of Heil	4th to 3rd	438	15	Single Homes
98	North of Heil	3rd to east end	445	14	Mixed
99	North of Heil	2nd to 1st	600	18	Mixed
100	North of Hamilton	4th St to 3rd	440	17	Mixed
101	North of Hamilton	Hope to Dogwood	1223	42	Single Homes
102	South of Hamilton	4th St to 3rd	457	9	Single Homes
103	South of Hamilton	1st St to Hope	1267	20	Single Homes
104	South of Hamilton	Hope to Dogwood	1100	13	Mixed
		Total Project Length	**54379**	**FT**	
		Total Project Length	**10.30**	**Miles**	
		Phase I Project Length	**13098**	**FT**	
		Phase II Project Length	**19680**	**FT**	
		Phase III Project Length	**21601**	**FT**	

ATTACHMENT – C.3

VMT & ADT CALCULATIONS

Estimated ADT Factors	
Single Home ADT =	2 ADT/Affected Parcel
Apartments ADT =	8 ADT/Affected Parcel
Mixed ADT =	75% Affected Parcel Single Family ADT + 25% Affected Parcel Apartment ADT

VMT & ADT Calculations

No.	Alley location	Segment	Length (ft)	Affected parcels	Notes	Estimated ADT	Vehicle Miles / Day
1	North of Woodward Ave	12th to 10th	557	9	Apartments	31.5	4
2	North of Woodward Ave	10th to 8th	618	9	Apartments	18	3
3	North of Woodward Ave	7th to 6th	462	12	Mixed	24	3
4	North of Euclid Ave	12th to west	156	3	Mixed	6	1
5	North of Euclid Ave	12th to 10th	554	22	Single Homes	44	5
6	North of Euclid Ave	10th to 8th	625	20	Single Homes	40	5
7	North of Euclid Ave	8th to 7th	620	24	Single Homes	48	6
8	North of Euclid Ave	7th to 6th	622	24	Single Homes	84	10
9	North of Euclid Ave	6th to 5th	611	24	Single Homes	84	10
10	North of Euclid Ave	5th to RR	288	12	Single Homes	24	2
11	North of El Centro Ave	12th to 10th	428	16	Mixed	56	5
12	North of El Centro Ave	10th to 8th	546	18	Mixed	63	7
13	North of El Centro Ave	8th to 7th	620	23	Single Homes	46	6
14	North of El Centro Ave	7th to 6th	612	24	Mixed	84	10
15	North of El Centro Ave	6th to 5th	560	22	Mixed	77	9
16	North of El Centro Ave	5th to RR	490	19	Single Homes	66.5	7
17	North of Adams Ave	12th to 10th	550	14	Mixed	49	6
18	North of Adams Ave	8th to 7th	609	16	Mixed	56	7
19	North of Adams Ave	7th to 6th	252	7	Mixed	14	1
20	North of Adams Ave	6th to 5th	446	16	Mixed	32	3
21	North of Adams Ave	5th to RR	610	19	Mixed	66.5	8
22	North of Adams Ave	Adams and El Centro	132	1	Single Home	3.5	1
23	North of Commercial Ave	Commercial to Park	375	5	Single Homes	17.5	2
24	North of Park Ave	Park to Adams	46	2	Mixed	16	1
25	North of Park Ave	Wilson to 12th	266	3	Mixed	24	2
26	North of Commercial Ave	10th to 8th	434	12	Mixed	96	8
27	North of Commercial Ave	8th to 7th	177	6	Apartments	21	1
28	North of Commercial Ave	7th to 6th	295	10	Apartments	35	2
29	North of Commercial Ave	5th to 4th	250	7	Apartments	14	1
30	North of Broadway Ave	5th to 4th	287	9	Mixed	18	1
31	North of Olive Ave	Imperial to 14th	400	10	MIxed	35	3
32	North of Brighton	14th to 12th	610	23	Single Homes	80.5	10
33	North of Brighton	12th to 10th	318	12	Single Homes	42	3
34	North of Brighton	6th to 5th	602	21	MIxed	73.5	9
35	North of Orange	8th to 7th	420	10	Mixed	35	3
36	North of Orange	7th to 6th	600	19	Mixed	38	5
37	North of Holt	5th to 4th	615	18	Mixed	36	5
38	North of Heil	Wilson to 12th	332	9	MIxed	18	2
39	North of Heil	12th to 10th	376	14	Single Homes	49	4
40	North of Heil	10th to 8th	361	15	Single Homes	30	3
41	North of Heil	Heil to Holt	310	5	Single Homes	17.5	2
42	North of Heil	8th to 7th	604	22	MIxed	44	6
43	North of Heil	7th to 6th	610	21	Single Homes	42	5
44	North of Heil	6th to 5th	502	16	Mixed	32	4
45	North of Hamilton	Wilson to 12th	326	13	Single Homes	45.5	3
46	North of Hamilton	12th to 10th	548	20	Single Homes	40	5
47	North of Hamilton	10th to 8th	435	15	Single Homes	30	3
48	North of Hamilton	Hamilton to Heil	162	3	Mixed	6	1
49	North of Hamilton	8th to 7th	605	19	Single Homes	66.5	8
50	North of Hamilton	7th to 6th	612	22	Single Homes	44	6
51	North of Hamilton	6th to 5th	623	22	Single Homes	44	6
52	North of Vine	Vine to Hamilton	282	5	Mixed	10	1
53	North of Vine	Imperial to 12th	1,090	42	Single Homes	84	18
54	North of Vine	12th to 10th	556	21	Single Homes	42	5
55	North of Vine	10th to 8th	435	16	Single Homes	32	3
56	North of Vine (W of 8th)	Vine to Hamilton	147	2	Single Homes	4	1
57	North of Lenrey	Lenrey to Vine	612	20	Single Homes	40	5
58	North of Wensley	14th to 12th	756	26	Single Homes	52	8
59	North of Wensley	12th to 10th	550	16	Single Homes	32	4
60	North of Wensley	7th to 6th	610	22	Single Homes	44	6
61	North of Wensley	6th to 5th	615	20	Single Homes	40	5
62	North of Wensley	5th to 4th	608	22	Single Homes	44	6

No.	Alley location	Segment	Length (ft)	Affected parcels	Notes	Estimated ADT	Vehicle Miles / Day
63	North of Lenrey	Lenrey to Wensley	263	6	Single Homes	12	1
64	North of Lenrey	14th to 12th	751	26	Single Homes	52	8
65	North of Lenrey	12th to 10th	553	16	Single Homes	32	4
66	North of Lenrey	8th to 7th	607	20	Single Homes	40	5
67	North of Lenrey	7th to 6th	611	19	Single Homes	38	5
68	North of Lenrey	6th to 5th	638	19	Single Homes	38	5
69	North of Lenrey	5th to 4th	606	23	Single Homes	46	6
70	North of Ross	Ross to Lenrey	532	16	Single Homes	32	4
71	North of Sandalwood	Sandalwood to Lenrey	266	6	Single Homes	12	1
72	North of Sandalwood	14th to 12th	760	22	Single Homes	44	7
73	North of Sandalwood	12th to 10th	560	18	Single Homes	36	4
74	North of Sandalwood	7th to 6th	632	18	Single Homes	36	5
75	North of Sandalwood	6th to 5th	640	20	Single Homes	40	5
76	North of Sandalwood	5th to 4th	609	20	Single Homes	40	5
77	North of Ross	Ross to Sandalwood	274	5	Single Homes	10	1
78	North of Ross (L shape)	14th to 12th	540	12	Single Homes	24	3
79	North of Ross	12th to 10th	558	16	Single Homes	56	6
80	North of Poplar	12th to west end	392	6	Single Homes	40	3
81	North of San Diego Ave	4th to Oak St	600	20	Single Homes	40	5
82	North of State St	Hope to McCullom	610	21	Mixed	42	5
83	North of Olive Ave	4th to east end	185	4	Commercial	8	1
84	North of Olive Ave	Hope to McCullom	606	24	Single Homes	48	6
85	North of Olive Ave	McCullom to Dogwood	543	21	Single Homes	73.5	8
86	North of Brighton	Hope to McCullom	604	20	Single Homes	70	9
87	North of Brighton	McCullom to Dogwood	549	20	Single Homes	40	5
88	North of Orange Ave	1st St to west end	300	10	Mixed	35	2
89	North of Orange Ave	1st St to Fairfield	642	16	Mixed	32	4
90	North of Orange Ave	Fairfield to Hope	602	24	Single Homes	84	10
91	North of Orange Ave	Hope to McCullom	602	22	Mixed	77	9
92	North of Orange Ave	McCullom to Dogwood	556	22	Single Homes	44	5
93	North of Holt	4th to 3rd	570	16	Mixed	32	4
94	North of Holt	1st St to Fairfield	602	25	Mixed	50	6
95	North of Holt	Fairfield to Hope	602	24	Single Homes	84	10
96	North of Holt	Hope to Dogwood	1,114	40	Single Homes	140	30
97	North of Heil	4th to 3rd	438	15	Single Homes	52.5	5
98	North of Heil	3rd to east end	445	14	Mixed	28	3
99	North of Heil	2nd to 1st	600	18	Mixed	36	5
100	North of Hamilton	4th St to 3rd	440	17	Mixed	34	3
101	North of Hamilton	Hope to Dogwood	1,223	42	Single Homes	84	20
102	South of Hamilton	4th St to 3rd	457	9	Single Homes	18	2
103	South of Hamilton	1st St to Hope	1,267	20	Single Homes	40	10
104	South of Hamilton	Hope to Dogwood	1,100	13	Mixed	45.5	10

Total Project Length	54,379	FT	Total Vehicle Miles/Day	550	Alley No.
Total Project Length	10.29905303	Miles	Phase I Vehicle Miles/Day	137	1-30
Phase I Project Length	13,098	FT	Phase II Vehicle Miles/Day	218	43-51 & 81-104
Phase II Project Length	19,680	FT	Phase III Vehicle Miles/Day	195	31-42 & 52-80

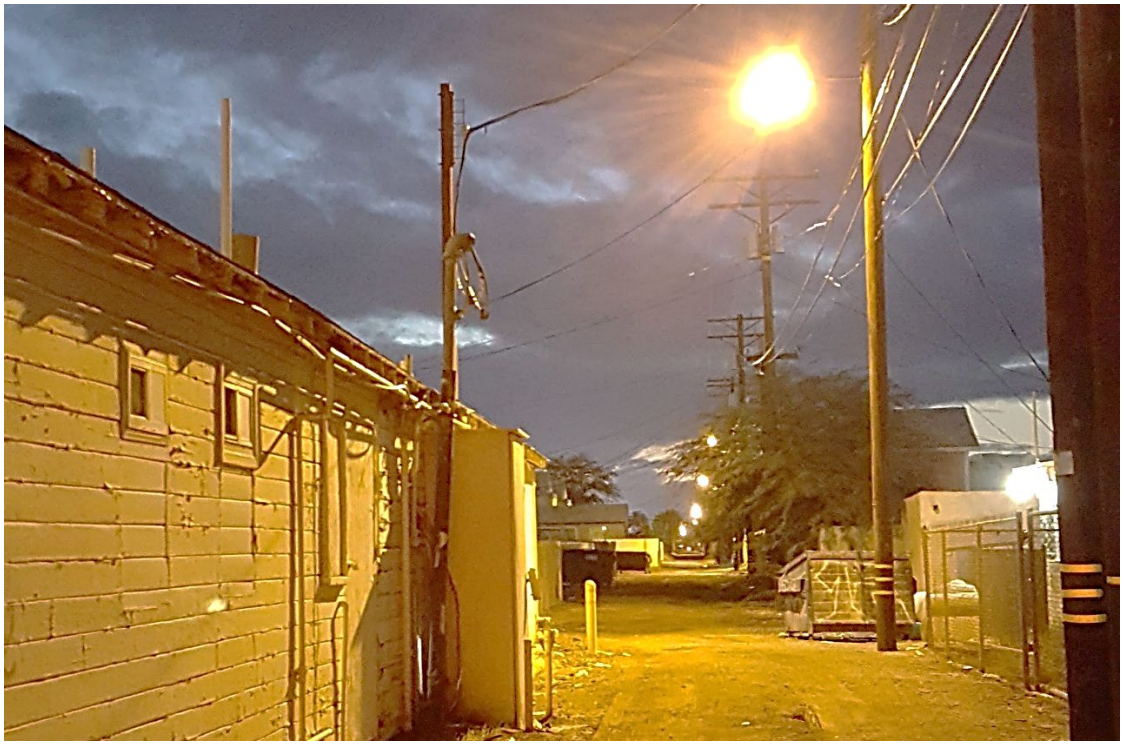
ATTACHMENT – C.4

EXISTING ALLEYWAY CONDITIONS

Alley Number 25 – Located North of Park Avenue, between Wilson Ave. and 12th St.

Alley Number 3 – Located North of Woodward Ave., between 7th St. and 6th St.

Alley Number 14 – Located North of El Centro Ave., between 7th St. and 6th St.



Alley Number 20 – Located North of Adams Ave., between 5th St. and 6th St.

ATTACHMENT – C.5

EPA EJSCREEN REPORT

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description:

Summary of ACS Estimates	2014 - 2018
Population	4,015
Population Density (per sq. mile)	10,019
People of Color Population	3,789
% People of Color Population	94%
Households	1,162
Housing Units	1,464
Housing Units Built Before 1950	220
Per Capita Income	13,182
Land Area (sq. miles) (Source: SF1)	0.40
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	0.00
% Water Area	0%

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	4,015	100%	518
Population Reporting One Race	3,944	98%	1,224
White	1,737	43%	370
Black	175	4%	193
American Indian	35	1%	52
Asian	16	0%	41
Pacific Islander	109	3%	87
Some Other Race	1,872	47%	481
Population Reporting Two or More Races	71	2%	149
Total Hispanic Population	3,615	90%	516
Total Non-Hispanic Population	400		
White Alone	226	6%	112
Black Alone	61	2%	72
American Indian Alone	0	0%	15
Non-Hispanic Asian Alone	2	0%	41
Pacific Islander Alone	109	3%	87
Other Race Alone	0	0%	12
Two or More Races Alone	0	0%	12
Population by Sex			
Male	1,739	43%	296
Female	2,276	57%	314
Population by Age			
Age 0-4	268	7%	93
Age 0-17	1,129	28%	174
Age 18+	2,886	72%	294
Age 65+	593	15%	123

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018 .

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description:

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	2,562	100%	384
Less than 9th Grade	656	26%	125
9th - 12th Grade, No Diploma	469	18%	99
High School Graduate	507	20%	191
Some College, No Degree	696	27%	158
Associate Degree	102	4%	47
Bachelor's Degree or more	234	9%	108
Population Age 5+ Years by Ability to Speak English			
Total	3,747	100%	493
Speak only English	669	18%	213
Non-English at Home[1+2+3+4]	3,078	82%	424
[1]Speak English "very well"	1,994	53%	362
[2]Speak English "well"	165	4%	66
[3]Speak English "not well"	494	13%	195
[4]Speak English "not at all"	425	11%	130
[3+4]Speak English "less than well"	919	25%	217
[2+3+4]Speak English "less than very well"	1,084	29%	226
Linguistically Isolated Households*			
Total	386	100%	71
Speak Spanish	386	100%	70
Speak Other Indo-European Languages	0	0%	12
Speak Asian-Pacific Island Languages	0	0%	12
Speak Other Languages	0	0%	12
Households by Household Income			
Household Income Base	1,162	100%	110
< $15,000	384	33%	69
$15,000 - $25,000	224	19%	59
$25,000 - $50,000	274	24%	72
$50,000 - $75,000	150	13%	63
$75,000 +	130	11%	67
Occupied Housing Units by Tenure			
Total	1,162	100%	110
Owner Occupied	242	21%	87
Renter Occupied	920	79%	101
Employed Population Age 16+ Years			
Total	3,056	100%	412
In Labor Force	1,559	51%	281
Civilian Unemployed in Labor Force	240	8%	90
Not In Labor Force	1,496	49%	236

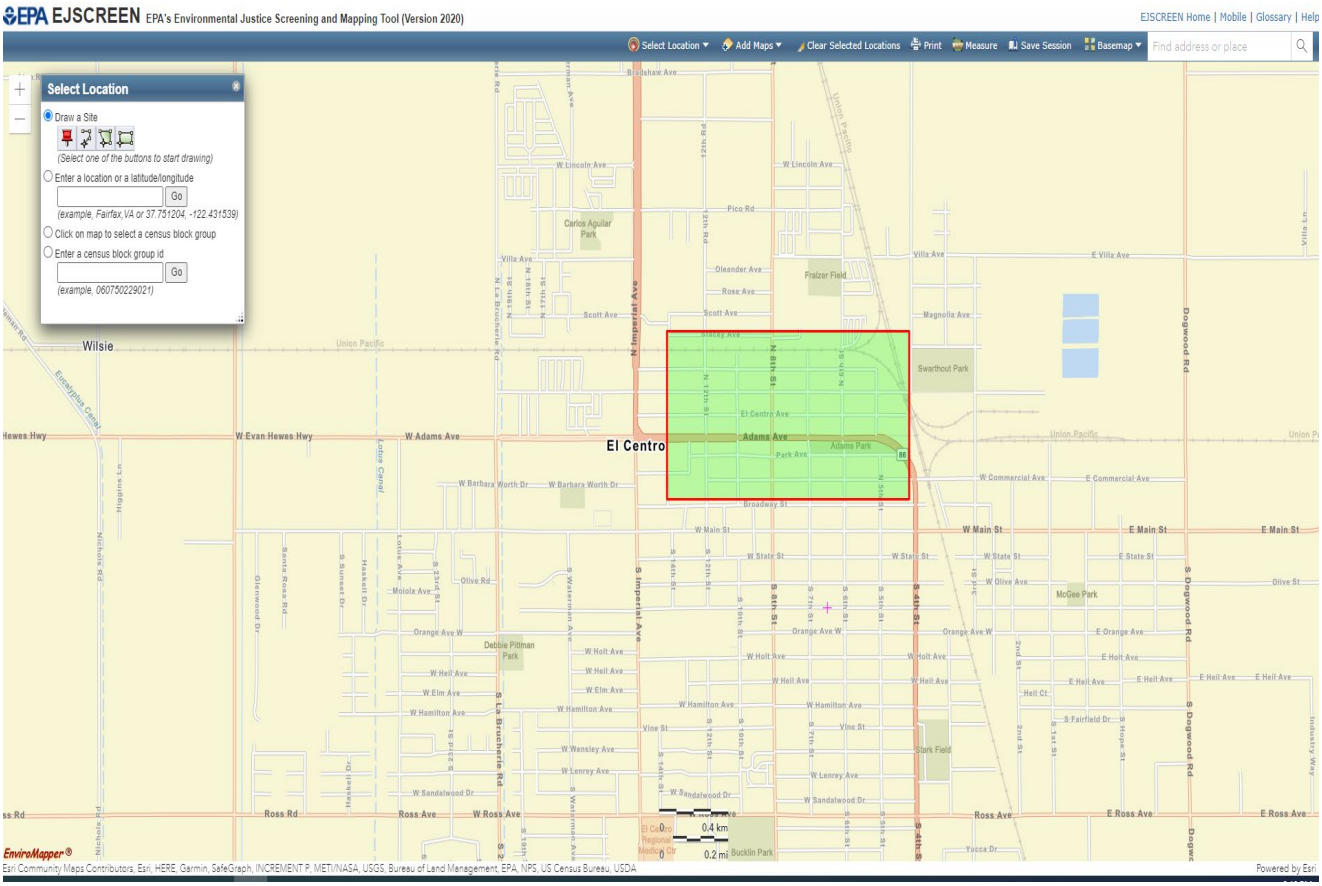
Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description:

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	3,733	100%	653
English	574	15%	312
Spanish	3,097	83%	622
French	11	0%	17
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	17
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	37	1%	40
Chinese	3	0%	4
Japanese	N/A	N/A	N/A
Korean	3	0%	7
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	0	0%	17
Other Asian	1	0%	4
Tagalog	0	0%	17
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	17
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	7	0%	16
Total Non-English	3,158	85%	724

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018.
*Population by Language Spoken at Home is available at the census tract summary level and up.


EPA EJSCREEN EPA's Environmental Justice Screening and Mapping Tool (Version 2020)
EJSCREEN Home | Mobile | Glossary | Help
Select Location
Add Maps
Clear Selected Locations
Print
Measure
Save Session
Basemap
Find address or place
Select Location
Draw a Site
(Select one of the buttons to start drawing)
Enter a location or a latitude/longitude
Go
(example, Fairfax, VA or 37.751204, -122.431539)
Click on map to select a census block group
Enter a census block group id
Go
(example, 060750229021)
Wilsie
El Centro
Swarthout Park
McGee Park
Stark Field
Fraizer Field
Carlos Aguilar Park
Debbie Pittman Park
Bucklin Park
N Imperial Ave
S Imperial Ave
W Main St
E Main St
W Adams Ave
W Evan Hewes Hwy
Hewes Hwy
Ross Rd
Ross Ave
W Ross Ave
E Ross Ave
Dogwood Rd
Union Pacific
0.4 km
0.2 mi
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ATTACHMENT – D

LETTER OF SUPPORT/ PARTNERSHIP

June 14, 2021

U.S. Environmental Protection Agency
ATTN: Tim Roberts
1200 Pennsylvania Ave., NW
Mail Code: 6102A
Washington, DC 20460

Re: Letter of Support for El Centro Alleyway $PM_{2.5}$ Reduction Project

Dear Mr. Roberts,

The City of El Centro supports the Imperial County Air Pollution Control District's (ICAPCD) efforts of implementing the proposal of paving a network of unpaved alleyways throughout the City by securing funds through the U.S. EPA Targeted Airshed Grant (TAG) Program. The City of El Centro submitted a proposal to the ICAPCD for improving native soil alleyways with asphaltic concrete (AC) roadway surfacing for various alleyways. The total length of native soil alleyways in this proposal (Phase I) is approximately 13,098 linear feet (approximately 2.5 miles).

Alleyways throughout the City of El Centro tend to be the primary access routes for residents' homes, secondary dwellings, and/or apartment complex's parking. Paving these heavily used unpaved alleyways would assist the County of Imperial with improving its $PM_{2.5}$ Non-Attainment Status and the ICAPCD with reducing air emissions in the Assembly Bill 617 local Community of El Centro-Heber-Calexico. Above all, the implementation of this emissions reduction project will reduce the health risk imposed on our City of El Centro residents.

In summary, the City of El Centro fully supports the ICAPCD's grant application to U.S. EPA for this emissions reduction project. If you have any questions, please feel free to contact me at 760-337-5182 or at acampos@cityofelcentro.org.

Sincerely,

Abraham Campos, P.E.
Public Works Director/City Engineer

Public Works Department
307 W. Brighton Avenue, El Centro, CA 92243 (760) 337-4505 Fax (760) 337-3172

Street Maintenance Division	Support Services Division	Motor Equipment Division	Underground Utilities Division	Wastewater Treatment Division	Water Treatment Division
307 West Brighton Avenue	*307 West Brighton Avenue*	*307 West Brighton Avenue*	*307 West Brighton Avenue*	*2255 LaBrucherie*	*3010 S. Eighth Street*
El Centro, CA 92243	*El Centro, CA 92243*	*El Centro, CA 92243*	*El Centro, CA 92243*	*El Centro, CA 92243*	*El Centro, CA 92243*